

Bi-National Assessment of the Great Lakes – A Look at SOLEC

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SOLEC Indicators in Relationship to Current Ambient Monitoring Practices and Results

- SOLEC
- Great Lakes Indicators
- Indicator Reporting
- Monitoring and Research Issues
- Conceptual Index

Great Lakes Water Quality Agreement (1987)

- Lakewide Management Plans (LaMP)
- Remedial Action Plans (RAP) for designated Areas Of Concern (AoC)
- Beneficial Use Impairments
- Ecosystem Objectives
- Indicators (Annex 11 of the GLWQA)
- Monitoring
- Reporting

What is SOLEC?

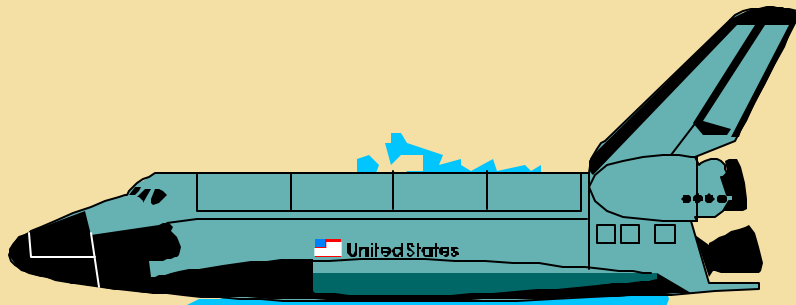
State of the Lakes Ecosystem Conference

- ◆ Biennial, binational report on progress toward meeting goals of the Great Lakes Water Quality Agreement
- ◆ Target Audience: environmental managers, decision makers, senior managers, public

SOLEC Objectives

- Assess the state of the Great Lakes ecosystem based on accepted indicators (per Annex 11 of the GLWQA)
- Strengthen decision making and management
- Inform local decision makers of Great Lakes environmental issues
- Provide forum for communication and networking among all stakeholders

SOLEC:
Focus on various
geographic scales



Basin-wide



Lake-wide



Local

SOLEC Themes

- 1994



State of the Great Lakes

- 1996



The Nearshore Environment
and Land Use

- 1998



Great Lakes Indicators &
Diversity Investment Areas

- 2000



Implementing Indicator Reporting
(Human Health Focus)

SOLEC DOES . . .

- Gather data from monitoring programs
- Rely on partnerships and collaboration
- Represent the combined voice of Canada and the U.S.
- Assess a suite of Great Lakes ecosystem components
- Recognize toxic substances as an important stressor
- Try to provide assessments to environmental managers & decision-makers

SOLEC

IS NOT . . .

- Regulatory Program
- Lake Management Program
- Scientific Research Program
- Scientific Research Conference

DOES NOT . . .

- Set Endpoints & Standards
- Set Lakewide Goals
- Dictate to Monitoring Programs
- Assess ONLY Toxic Substances
- Maintain Centralized Data Repository

SOLEC Indicators

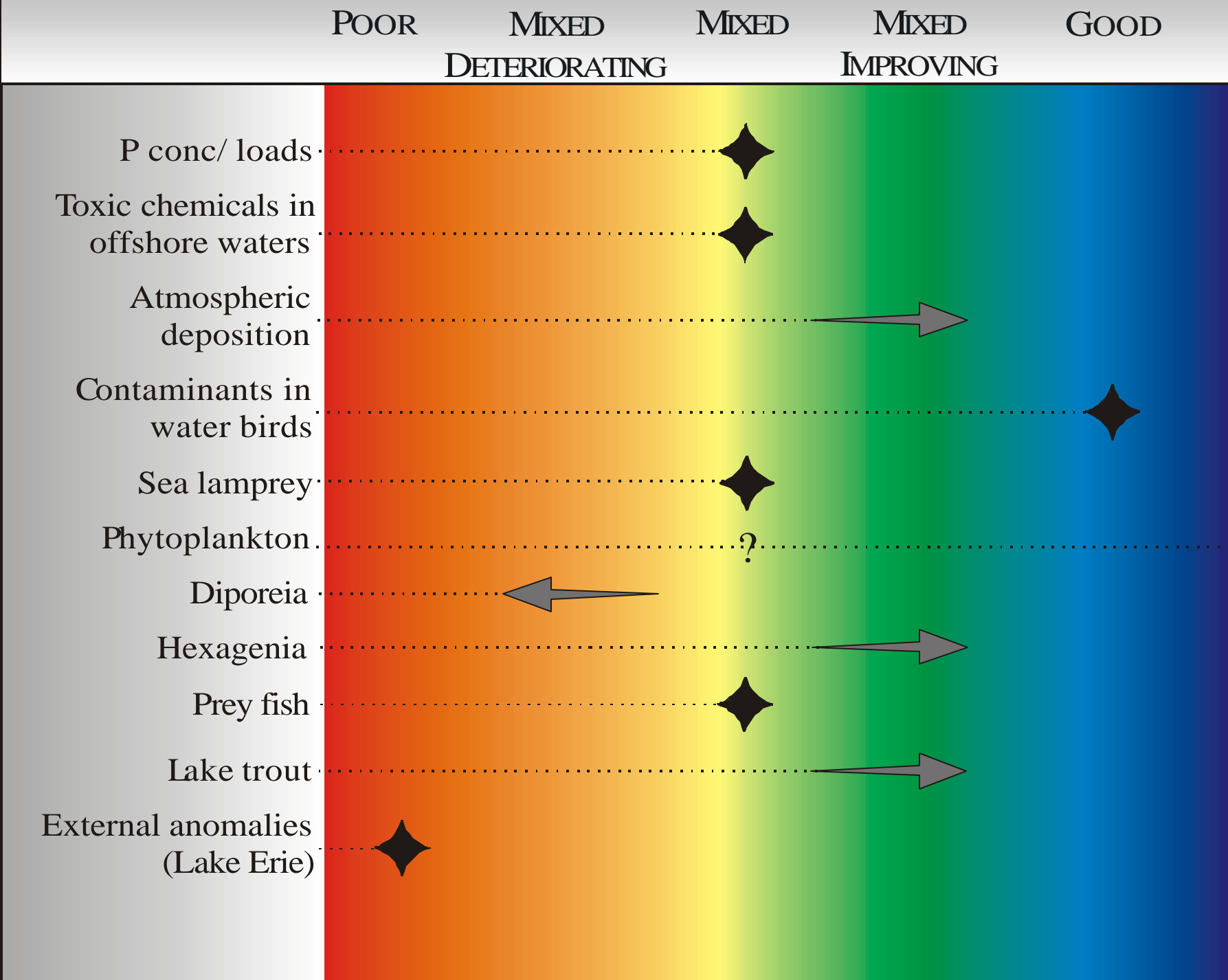
A compilation of indicators necessary, sufficient and **feasible to characterize the state of the Great Lakes ecosystem**

- Give an overview of conditions in the Great Lakes
- Provide consistency of information
- Lead to efficient allocation of resources for data collection, evaluation and reporting
- Reach consensus on information needed for multiple Great Lakes programs

SOLEC Indicators by Great Lakes Issue

• Contaminants & Pathogens (PBTs	29 15)
• Nutrients	11
• Exotic Species	14
• Habitat	27
• Climate Change	7
• Societal	19

OPEN AND NEARSHORE WATERS



COASTAL WETLANDS

POOR

MIXED

MIXED

MIXED

GOOD

DETERIORATING

IMPROVING

Amphibians



Snapping turtles



Bird diversity /
abundance



Area by type



Effects of water
levels



HUMAN HEALTH

POOR

MIXED

MIXED

MIXED

GOOD

DETERIORATING

IMPROVING

Air Quality.

Swimming
advisories

Drinking water.

Fish consumption.
advisories



SOLEC 2000 PBT Indicators

Good

- Contaminants in Colonial Nesting Waterbirds

Mixed Improving

- Atmospheric Deposition of Toxic Chemicals
- Contaminants Affecting Productivity of Bald Eagles
- Contaminants in Edible Fish Tissue

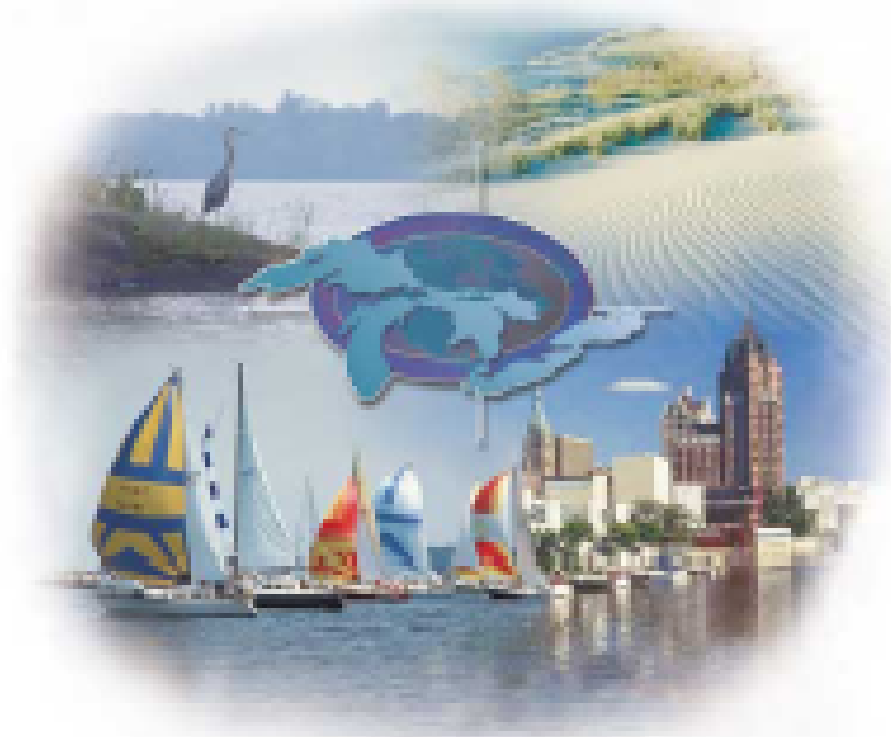
Mixed

- Toxic Chemical Concentrations in Offshore Waters
- Contaminants in Snapping Turtle Eggs

Probable PBT Indicators for SOLEC 2002

- Previous 6 indicators plus...
- Contaminants in y-o-y spottail shiners
- Concentration of contaminants in sediments
- Contaminants affecting American Otter?
- Contaminant exchanges between media?
- Chemical contaminants in human tissue?
- new - Contaminants in Whole Fish

STATE OF THE GREAT LAKES 2001



Biennial Report

Binational Report

**Assessment of Great
Lakes Ecosystem
Components**

**Based on Indicators
Data**

**Readable,
Understandable,
Attractive**

Online & CD also

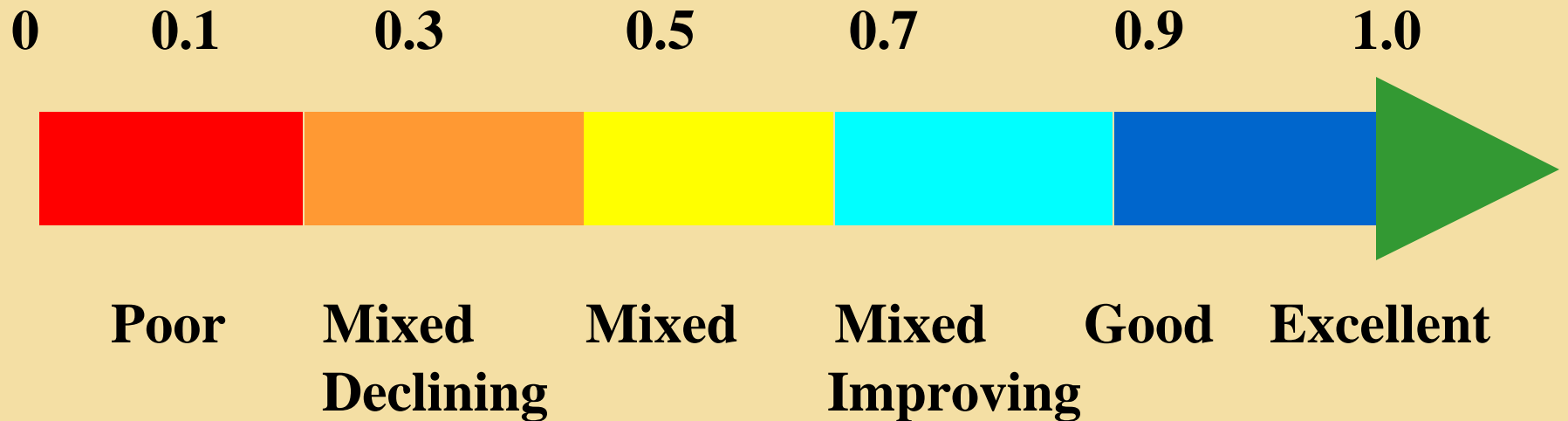
Monitoring & Research Issues

- SOLEC has so far relied on existing programs
- Issues of spatial and temporal scales
- Research & development to lead to new monitoring
- Some, **but not all**, existing monitoring will be adjusted for SOLEC
- Linkages to Lakewide Management Plans, Great Lakes monitoring network(s)

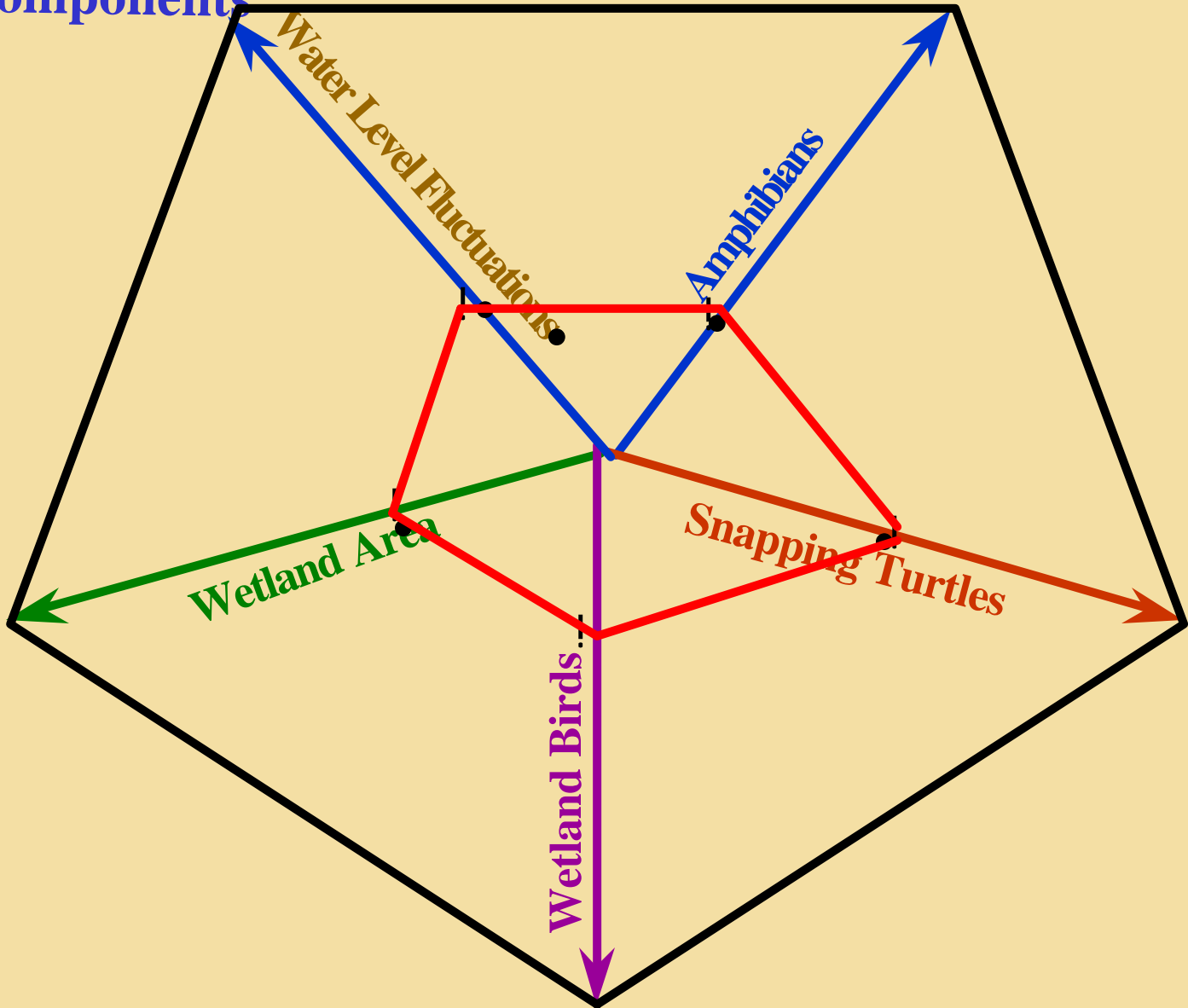
Index Development

- Trying to aggregate indicators - eventually report out on 10-20 indices rather than 80+ indicators
- Currently working on an INDEX concept For example: **Wetlands Key Components**
 - **Contaminants in snapping turtle eggs**
 - **Amphibian diversity & abundance**
 - **Wetland-dependent bird diversity & abundance**
 - **Coastal wetland area by type**
 - **Effect of water level fluctuations**

Index Scale for Qualitative Ratings



Wetlands
Key Components



SOLEC in the FUTURE...

- 2002 SOLEC: Biological Integrity
- **2003 Workshop**
- **2004 SOLEC: Chemical Integrity**
- 2005 Workshop
- 2006 SOLEC: Physical Integrity
- 2007 Workshop
- 2008 SOLEC: Theme to be determined

For More Information...

Visit the SOLEC websites:

www.binational.net

www.on.ec.gc.ca/solec/

www.epa.gov/glnpo/solec/